
Preparing for MAT 5 Installation

This chapter provides instructions for setting up the PC, network, and server environment for MAT 5 installation. These steps are required for anyone installing MAT 5 for the first time—even if you are upgrading from MAT 3 or MAT 4.

If you are upgrading from an earlier version of MAT 5, you are already set up for MAT 5. You may skip directly to “[Upgrading from an Earlier Version of MAT 5](#)” on page 75.

This font is used to designate information to enter, buttons to click, or menu commands to choose. For example, “Click **OK** to continue.”

Step 1: Check Meridian 1 Requirements

Begin by checking that you have the PC hardware and software for MAT 5.

- 1 Verify that the Meridian 1 system has the following system configuration.
 - The appropriate X11 release, configured with the appropriate packages as specified in “[MAT 5 Communications Requirements](#)” on page 145
 - 48MB or greater of memory on the Meridian 1
 - For Ethernet communications and Release 22:
 - IOP cards (Part number NT6D63BA or later) or IOP/CMDU cards (Part number (NT5D20BA or later). Not applicable to Option 11C systems, Release 22.
 - One or two Ethernet AUI cables (Part number NT7D90DA or later). You will attach one cable to each IOP or IOP/CMDU.
 - For Option 11C, an NTDK27AA Ethernet cable

2 For Ethernet networks, you will need the following:

- One or two Ethernet transceivers (different types for 10BaseT and 10Base2 cabling). Attach one transceiver to each AUI cable.
- Ethernet communications cable, as follows:

- 10BaseT cabling requires Category 5 cable with RJ45 connectors

Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

- 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

- If you are using the 10BaseT interface, an Ethernet hub is required.

Warning! If you plan to connect the Meridian 1 switch to a corporate network, an Ethernet gateway or router is required to separate the Meridian 1 from the corporate network. Connecting the Meridian 1 without a gateway or router will adversely affect the Meridian 1 system's call handling ability.

3 For PPP networks, you will need the following:

- Hayes command compatible modem
- modem cables
- M1 SDI ports will require user type MTC and SCH be set in LD17

- 4 For serial communications**, you will need the following:
- Hayes command compatible modem
 - Modem cables
 - Direct serial cable connection between the PC and the SDI port on the switch
 - M1 SDI ports will require the appropriate user type be set in LD17 for each MAT application (see [Table 1](#))

Table 1
SDI Port Settings for MAT Applications

MAT Application	SDI Port Setting
Station Administration	SCH
ESN	SCH
Call Accounting	CTY
Call Traffic	TRF if information is output to a buffer box SCH if information is collected hourly from the Meridian 1 switch

Step 2: Check PC Hardware and Software

In this step, you will check that you have the required PC hardware and software for MAT 5.

- 1 Verify that you have an IBM™ or compatible computer (Intel Pentium™ 100 MHz or faster) with the following:
 - 32MB memory
 - 3.5 inch, 1.44MB diskette drive
 - CD ROM drive
 - 1 GB hard disk (500 MB free space recommended; for more information, refer to [“Memory Requirements” on page 139](#))
 - Network communications hardware, as follows:
 - Ethernet Network Interface card (NIC) if you plan to use Ethernet network communications
 - Ethernet transceiver (if required for the NIC) that matches your cabling and network type
 - Hayes command compatible modem and cable for serial or PPP communications
 - Serial port using 16550 UART technology
 - Parallel printer port (a printer must be configured, even though it is not required to be physically attached to the PC)
 - SVGA graphics monitor with interface card
 - Windows-compatible mouse (a bus mouse)
 - Hardware security dongle (provided by NORTEL)
- 2 Verify that the PC is running Windows 95 software and you have access to installation diskettes for Windows 95 and devices, such as printers. Always use the most recent file version.

Step 3: Prepare a Network Plan

If you have an Ethernet network, follow these instructions to prepare a network plan. A network plan helps you to visualize the network layout and to prepare all required hardware for the installation. A well-prepared network plan will save you hours of effort during installation.

- 1 If the Meridian 1 network is to connect to the company's internal network by a gateway, ask the network administrator for IP addresses for the Meridian 1 system and MAT PC.

The network administrator will also provide access rights to the network drive, and will setup the router with information on the MAT portion of the network.

Note: NORTEL recommends that you use 10BaseT hardware if you use Meridian Mail, or if you plan to upgrade to future Meridian products.

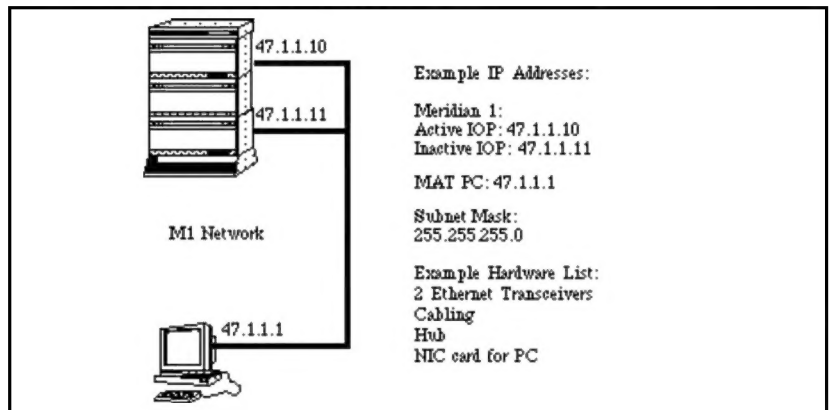
- 2 Assign an IP address to each device on the network (each IOP, MAT PC, gateway file server, and so on).

You can use the default Meridian 1 IP address values if you do not plan to connect the Meridian 1 network to any other network.

- 3 Draw a network plan like that shown in [Figure 2](#).

Note: Unless otherwise specified, all IP addresses are only examples.

Figure 2
Example Ethernet Network Plan



Step 4: Set Up Windows95 Networking for MAT

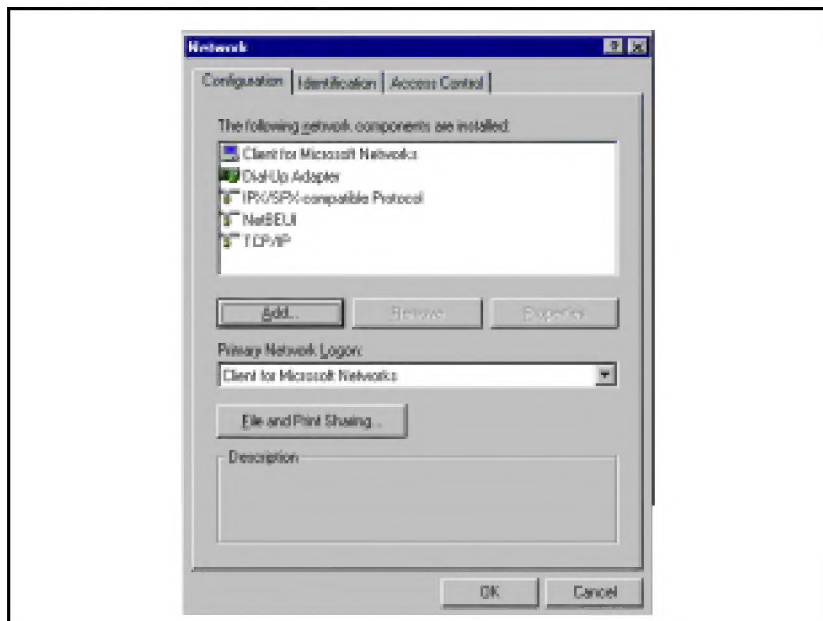
In this step you will install the networking software components required for MAT to run correctly. MAT needs these components even for serial connections.

- 1 Open the Network icon in the Windows 95 Control Panel window. Check that the following components are installed:

- Client for Microsoft Networks
- Dial-Up Adapter
- TCP/IP

Note: MAT uses all three network components to run in a networked or non-networked environment.

Figure 3
Network property sheet

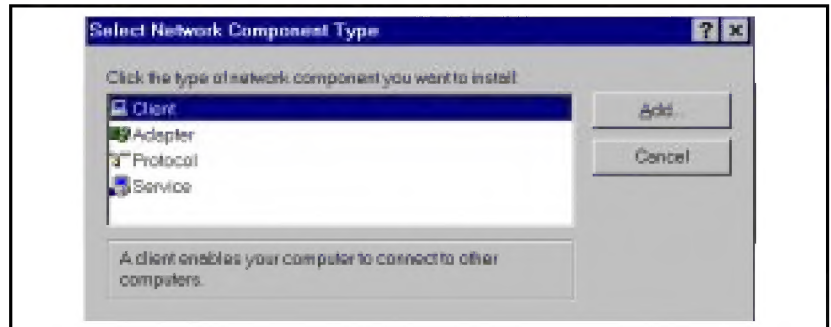


- 2 If you are missing any of these components, use the instructions on the following pages to install them.

Installing “Client for Microsoft Networks” component

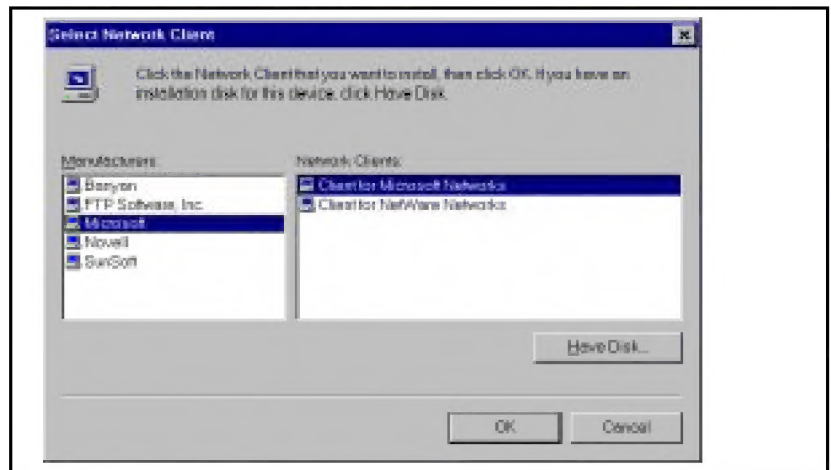
- From the Network window in the Windows 95 Control Panel, click **Add** to display the Select Network Component Type dialog box.

Figure 4
Select Network Component Type dialog box



- Click **Client** and click **Add** to display the Select Network Client dialog box.
- Click **Microsoft** from the Manufacturers list and **Client for Microsoft Networks** from the Network Clients list. Click **OK**.

Figure 5
Select Network Client dialog box



- Click the **Identification** tab and fill in the Computer Name and Workgroup fields with information provided by your network administrator. Click **OK**.
- Go on to install the next missing component. If you are finished installing missing components, click **OK** in the **Network** window to close it (do not click Cancel or your changes will not be saved).

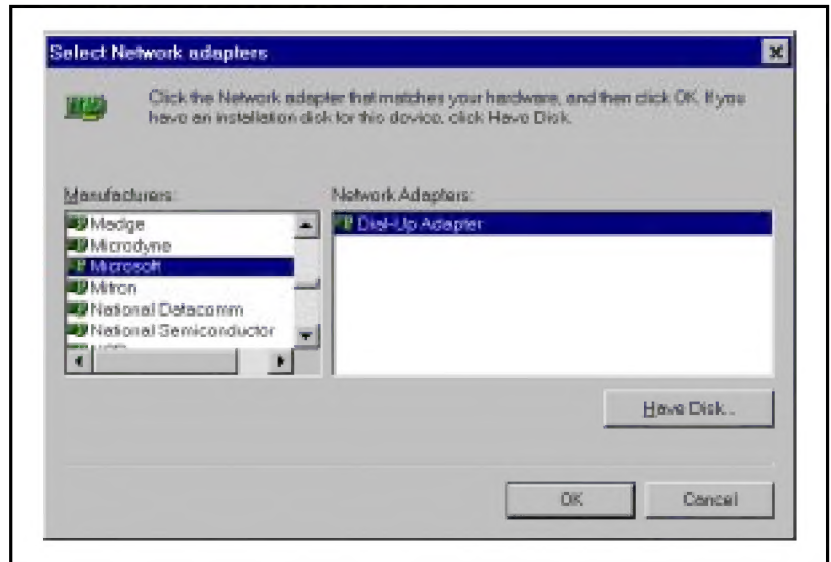
Note: When you click OK, you may be asked to insert Windows 95 installation diskettes. If the DHCP client dialog box displays, click **No**, then restart the PC and logon to the server if you require network access.

Installing Dial-Up Adapter software

- From the Network window in the Windows 95 Control Panel, click **Add** to display the Select Network Component Type dialog box.
- Click **Adapter** and click **Add** to display the Select Network Adapters dialog box.
- Click **Microsoft** from the Manufacturers list and **Dial-Up Adapter** from the Network Adapters list. Click **OK**.
- Go on to install the next missing component. If you are finished installing missing component, click **OK** in the Network window to close it (do not click Cancel or your changes will not be saved).

Note: When you click OK, you may be asked to insert Windows 95 installation diskettes. If the DHCP client dialog box displays, click **No**, then restart the PC and logon to the server if you require network access.

Figure 6
Select Network Adapters dialog box

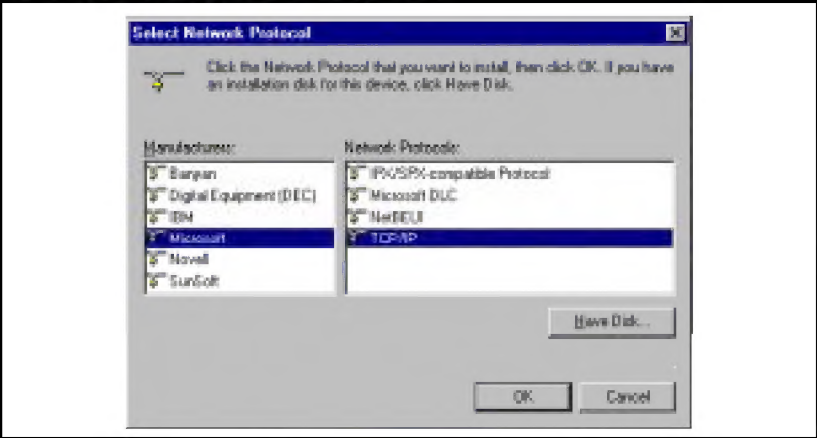


Installing TCP/IP software

- From the Network window in the Windows 95 Control Panel, click **Add** to display the Select Network Component Type window.
- Select Protocol and click **Add** to display the Select Network Protocol window.
- Select Microsoft from the Manufacturers list and TCP/IP from the Network Protocols list (see Figure 7). Click **OK**.
- In the Network window, click **OK** (do not click Cancel or your changes will not be saved).

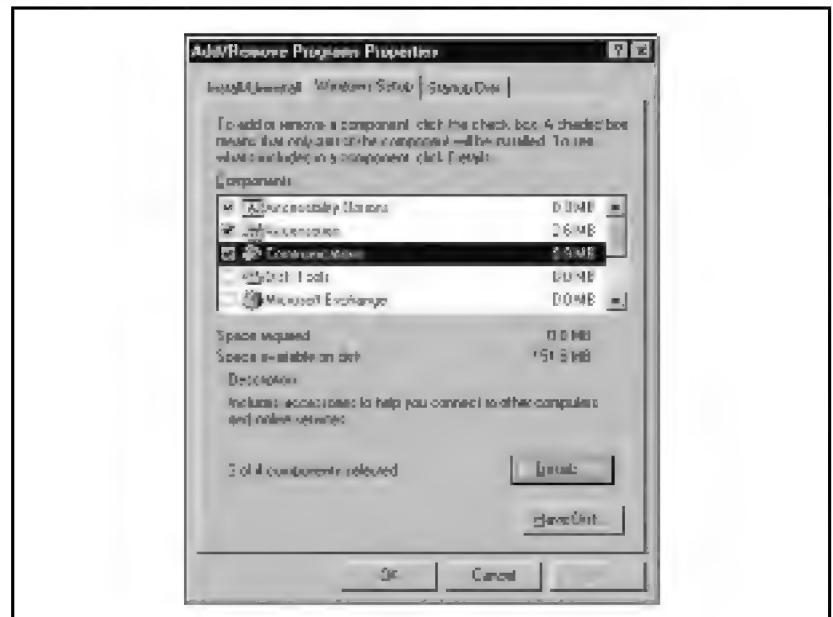
Note: When you click OK, you may be asked to install Windows 95 installation diskettes. If the DHCP client dialog box displays, click **No**, then restart the PC and logon to the server if you require network access.

Figure 7
Select Network Protocol dialog box



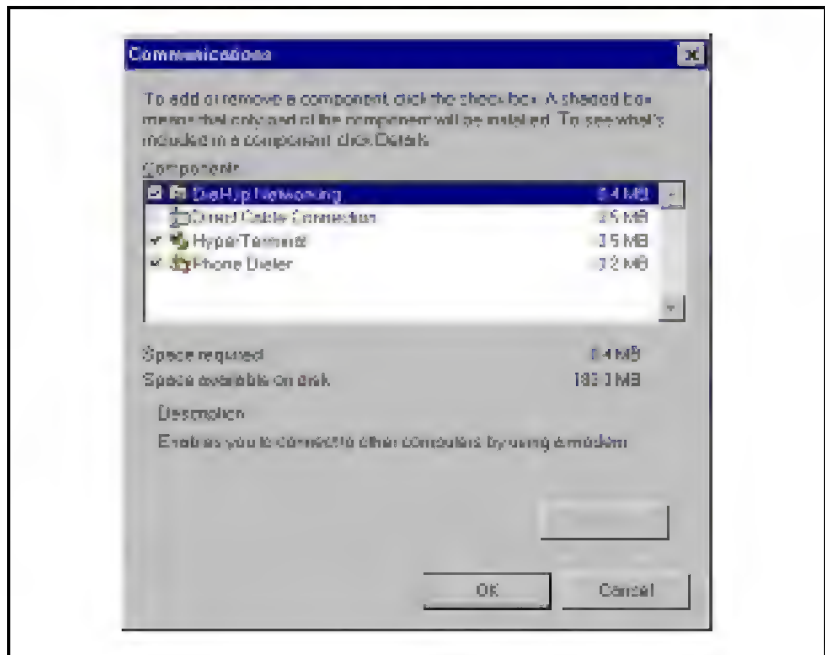
- 3 When all three components are installed, follow these instructions to activate them.
- Open the Add/Remove Programs icon in the **Control Panel** window.
 - Click the **Windows Setup** tab.
 - Open the Communications icon (Figure 8).

Figure 8
Add/Remove Programs property sheet, Windows Setup tab



- Make sure that Dial-Up Networking is checked (check it if it is unchecked) then click **OK** (Figure 9).
- In the Add/Remove Programs Properties window, click **OK** to complete the installation.

Figure 9
Add/Remove Programs property sheet, Windows Setup tab,
Communications components



Step 5: Setting Up the Communications Environment

Now you are ready to configure Ethernet, PPP, or Serial communications between the MAT PC and the Meridian 1. Follow the instructions for the connections you require.

Configuring PC Ethernet Communications

- 1 Install the Ethernet Network Interface Card (NIC) in the PC, if not already installed.

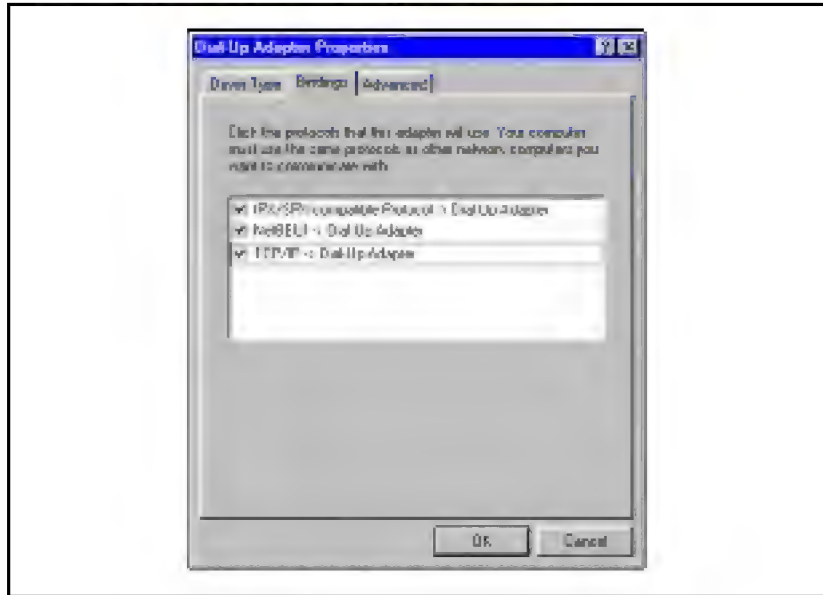
Refer to the manufacturer's manual for detailed instructions. If your NIC does not automatically detect the physical interface type, you must configure the card to communicate to the correct physical Ethernet port (RJ45 connector for 10BaseT cabling, BNC connector for 10Base2 cabling, or AUI D-connector for use with a transceiver to either 10BaseT or 10Base2 cabling).

If your NIC autosenses the interface type, you need not configure the interface to the physical connector.
- 2 Install the NIC software drivers as specified in the manufacturer's manual.
- 3 Restart the PC.

Configuring PC PPP Communications

- 1 In the Windows 95 Control Panel window, open the Network icon.
- 2 Select Dial-Up Adapter and click **Properties**.
- 3 Click the **Bindings** tab. Make sure that TCP/IP -> Dial-Up Adapter is checked (see [Figure 10](#)) then click **OK**.
- 4 Click **OK** to close the Network window.
- 5 Go on to "[Configuring PC Serial Communications](#)" on [page 28](#) to install and set up a modem, which is also required by MAT PPP communications.

Figure 10
Dial-Up Adapter property sheet, Bindings tab



Configuring PC Serial Communications

- 1 Follow the manufacturer's instructions to install, connect, and configure your modem hardware and software.
- 2 **Important!** Make sure that no other communications devices are configured on the same COM port as the modem to be used for MAT.

Step 6: Set Up the Meridian 1 for Ethernet and PPP

This step consists of four tasks:

- Configuring MAT users on the Meridian 1
- Configuring Ethernet and PPP at the Meridian 1
- Connecting the PC to the Meridian 1
- Testing the Ethernet or PPP connections

Configuring MAT Users on the Meridian 1

User input is shown in bold following the “>” prompt. For example, > **LD 17**.

- 1 Install the appropriate release of X11 software.

See “[X11 Releases Required for various MAT Applications](#)” on [page 145](#). X11 Release 22 is required for Ethernet and PPP communications.

- 2 Perform an INIT.

- 3 Configure LAPW. MAT communicates with the Meridian 1 through LAPW IDs and passwords configured on the Meridian 1.

>logi (ID) (enter the login ID)

Note: When a Limited Access Password (LAPW) is defined to collect traffic data from Overlay 2, configure the password to have access to all customers by setting the CUST prompt to ALL. For more information about Limited Access to Overlays, see the X11 Software Features Guide.

PASS?> (enter the level 1 or level 2 password)

WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM ARE LICENSED TO OR ARE THE PROPERTY OF NT/BNR AND ARE LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR APPROVED PURPOSES. UNAUTHORIZED ACCESS TO ANY PROGRAM OR DATA ON SYSTEM IS NOT PERMITTED. THIS SYSTEM MAY BE MONITORED AT ANY TIME FOR OPERATIONAL REASONS. THEREFORE, IF YOU ARE NOT AN AUTHORIZED USER, DO NOT ATTEMPT TO LOGIN.

TTY #00 LOGGED IN 15:02 9/7/1996

The following section is only required if login names are not configured.

>ld 17

CFN000

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

REQ> **chg**

TYPE> **pwd**

PWD2 **(your level 2 password)**

LNAME_OPTION> **yes**

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

DEFAULT LOGIN NAMES SAVED

Note: At this point, your old passwords will work with either the newly assigned user IDs or with the default user ID values associated with your old passwords. See the online help for LD17, LNAME_OPTION for more information. Please alert others of any changes; for example, all technicians with access to the Meridian 1, the Distributor, and so on.

Continue configuring LAPW and MAT:

REQ> **chg**

TYPE> **pwd**

PWD2 **(your level 2 password)**

LNAME_OPTION> **yes**

NPW1

LOGIN_NAME

NPW2

LOGIN_NAME

LAPW> **88 (example)**

PWTP

PW88

Note: You will be prompted to enter your new password.

LOGIN_NAME> **johns (example)**

OVLA> **all**

OVLA

CUST> **all**

CUST

HOST

MAT> **yes**

MAT_READ_ONLY> **no**

OPT

LAPW

FLTH

LOCK

AUDT

INIT

MEM AVAIL: (U/P): 3352149 USED: 203178 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

REQ> **end**

4 If you are using serial connections, skip this step.

If you are using Ethernet or PPP connections, configure a PTY for each MAT application that will run over Ethernet or PPP simultaneously. For example, Maintenance Windows and System Terminal each require a PTY if they run at the same time. If you have enough free ports, NORTEL recommends that you configure at least two PTYs. You can allocate a maximum of 8 PTYs (maximum of 4 PTYs on an Option 11C).

Find an empty tty slot:

>**ld 22**

PT2000

REQ> **prt**

TYPE> **adan tty**

```
ADAN      TTY 0
CTYP PTY
DNUM 0
PORT 0
DES pty0
FLOW NO
USER SCH
XSM NO
TTYLOG      0
PORT 7
DES jonspty
FLOW NO
USER MTC SCH BUG
XSM NO
TTYLOG      0
BANR YES

ADAN      TTY 8
CTYP SDI2
DNUM 8
DES TECHSUN
FLOW NO
USER MTC SCH CTY BUG
XSM NO
TTYLOG      0
BANR YES

...
REQ> ****
OVL000
>ld 17
CFN000
MEM AVAIL: (U/P): 3352149      USED: 203178      TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:   15      USED:   1      TOT:   16
AML  AVAIL:   10      USED:   0      TOT:   10
```

Choose an empty port number between 0-15. Choose a PTY number 0-7. In this example, we find TTY 13 to be free, and assign PTY 0.

```
REQ> chg
TYPE> adan
ADAN> new tty 13
TTY-TYPE> pty
PORT> 0
DES> 13
DES> new pty
FLOW
USER> mtc bug sch
TTYLOG
BANR
```

```
MEM AVAIL: (U/P): 3345946      USED: 209381      TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15      USED:    1      TOT:    16
AML  AVAIL:    10      USED:    0      TOT:    10
```

```
ADAN DATA SAVED
ADAN> end
```

Configuring Ethernet and PPP at the Meridian 1

The host names and IP addresses used in the following instructions are only examples. *Actual host names and IP addresses should conform to your network plan.*

- 1 In LD 117, configure an IP address at the Meridian 1.


```
>LD 117
>NEW HOST M1ACTIVEIP 47.1.1.10
>CHG ELNK ACTIVE M1ACTIVEIP
```
- 2 If you are using a backup (inactive) IOP, use LD 117 to configure it as well.


```
>NEW HOST M1INACTIVEIP 47.1.1.11
>CHG ELNK INACTIVE M1INACTIVEIP
```
- 3 Configure the subnet mask.


```
>CHG MASK 255.255.255.0
```

- 4 If you have a default gateway in the network, define the routing table in LD 117.

>LD 117

NEW ROUTE 0.0.0.0 47.1.1.250

The routing table provides the Meridian 1 with the IP address of the gateway server so that the Meridian 1 can send return messages to the gateway for forwarding to the requesting client.

- 5 If you are using PPP, use the default addresses unless there is an address conflict. If a conflict exists, obtain a new IP address from your network administrator and configure this address.

>LD 117

NEW HOST PPPLOCAL 47.0.0.2

CHG PPP LOCAL PPPLOCAL 1

>LD 117

NEW HOST PPPREMOTE 47.0.0.3

CHG PPP REMOTE PPPREMOTE 1

Connecting the PC to the Meridian 1

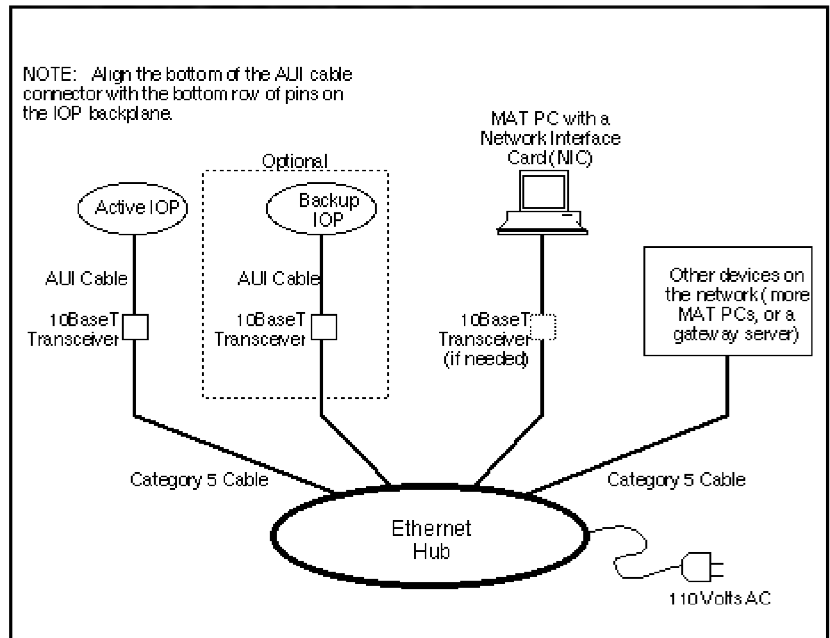
- 1 Install the Ethernet or PPP connections between the PC and the Meridian 1. Follow the appropriate instructions for your installation.

For 10BaseT Installation:

- The bottom of the AUJ cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUJ cable. Turn off the SQE Test switch on the transceiver, if equipped.
- An Ethernet hub is required. Hubs require external power (usually a power supply that plugs into a wall outlet).
- 10BaseT cabling requires Category 5 cable with RJ45 connectors.

Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

Figure 11
Cabling Detail, Example 10BaseT Installation

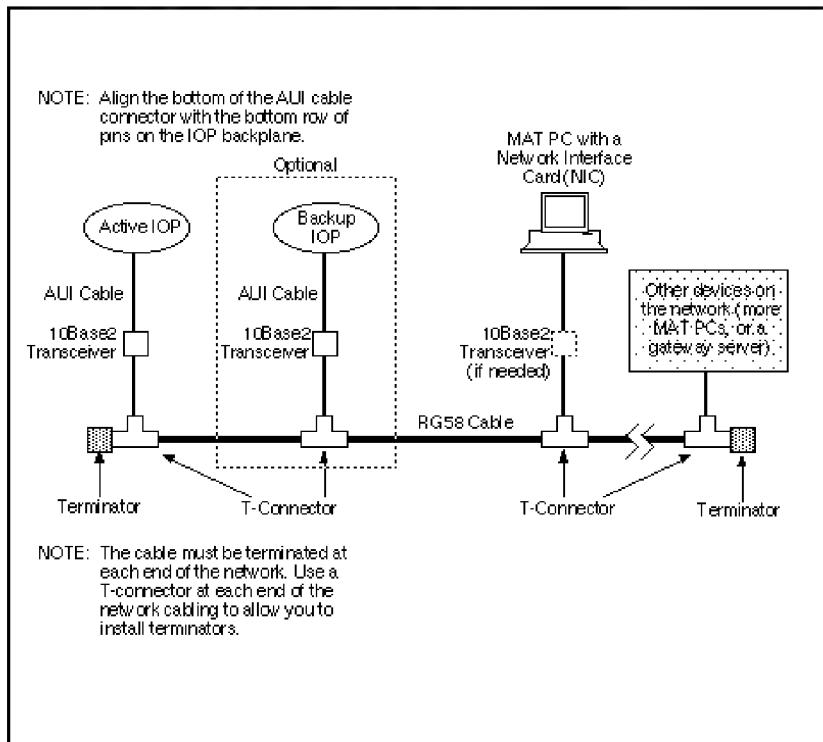


For 10Base2 Installation:

- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the SQE Test switch on the transceiver, if equipped.
- The MAT PC connection requires a transceiver if the NIC port is AUI D-connector type. If the NIC connection is BNC type, connect a T-connector to the NIC and connect the RG58 cable to the connector.
- 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

Figure 12
Cabling Detail, Example 10Base2 Installation



Testing Ethernet Connections

When you have completed Ethernet configuration and cabling, test Ethernet communications by “pinging” the various network devices to verify that you can communicate between them.

- 1 At the MAT PC, start a DOS window.
- 2 Enter: **ping 47.1.1.10** (ping the active IOP—IP address 47.1.1.10 in our example)
- 3 If you receive a response, ping the other devices in the network to verify their connections.
- 4 If you cannot ping successfully, do the following:
 - Verify that the IOP part number is NT6D63BA. If you are using Option 11C, check the Ethernet connection.
 - Check that the AUI cable is installed correctly, as follows:
 - Verify that the connector is in the same slot as the IOP
 - The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane
 - Check that Ethernet transceivers are installed at each AUI cable. Turn off the SQE Test switch on the transceiver, if equipped.
 - Make sure that you are using an Ethernet hub. Swapping the transmit and receive pins in the category 5 cable is not a workable substitution for an Ethernet hub.
- 5 If you still cannot ping successfully, review all previous installation steps in this installation chapter to verify proper connections and configuration.

Testing PPP Connections

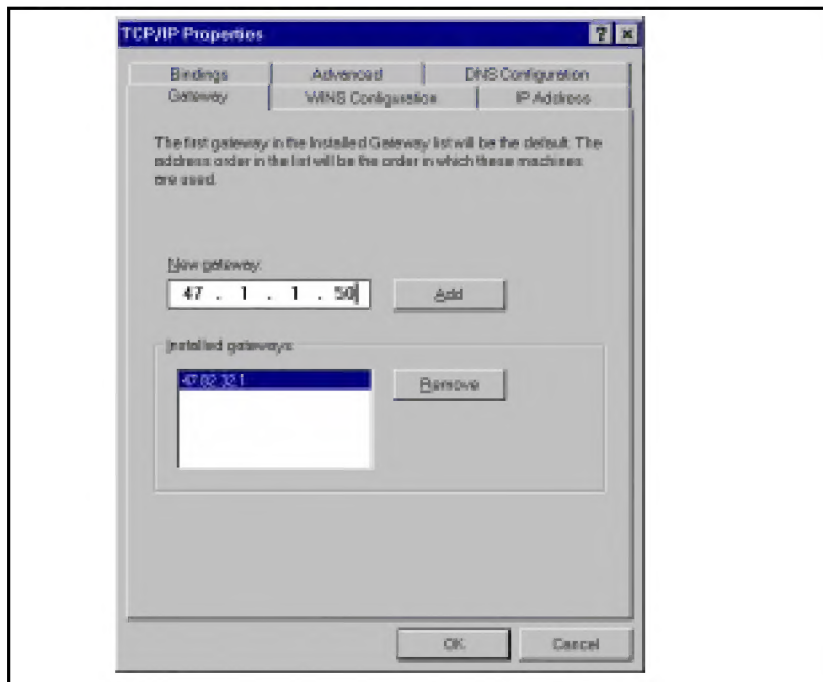
When you have completed PPP configuration and cabling, test PPP communications by making sure that the modem dials and connects successfully without error messages. Turn the modem volume up so that you can hear what is happening as the modem dials. If the test fails, see **“Troubleshooting Modem Connections” on page 160.**

Step 7: Set Up a Network Environment

Follow these instructions if you are using an Ethernet connection to the Meridian 1. If you are not using an Ethernet connection, skip to “[Step 8: Set Up the Server Environment](#)”.

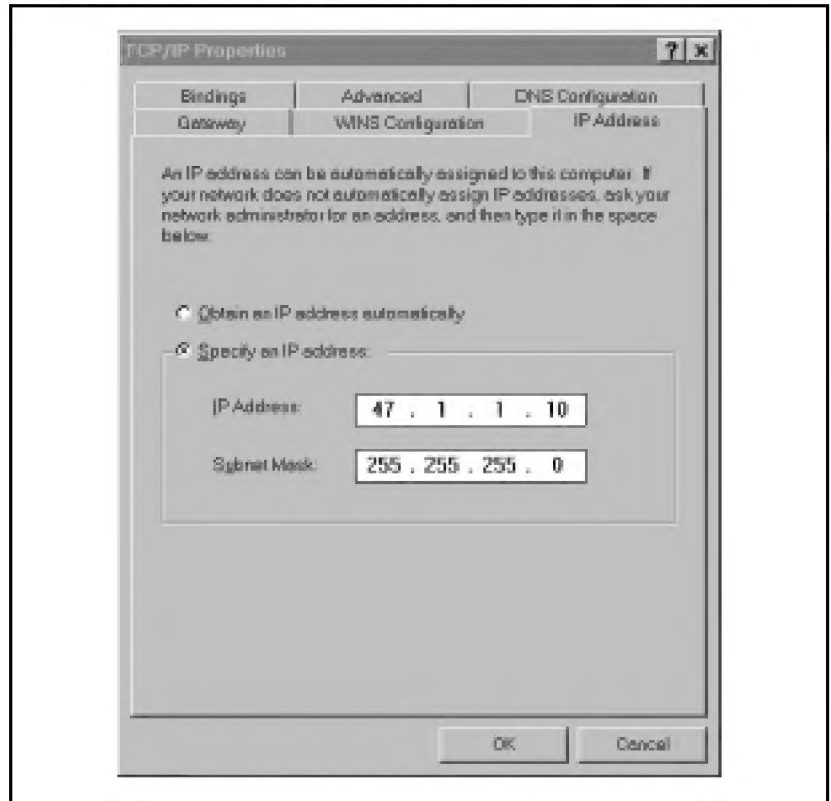
- 1 Open the Network icon from the Windows 95 Control Panel window
- 2 Select the TCP/IP configuration used for the Ethernet connection, and click **Properties**.
- 3 If you have a router, do the following:
 - Click the **Gateway** tab.
 - Enter the gateway IP address obtained from your network administrator, if not already entered (47.1.1.50 in our example).
 - Click **Add**.

Figure 13
TCP/IP property sheet, Gateway tab



- 4 Click the **IP Address** tab and fill in the following information, if not already entered:
 - Check the Specify an IP Address box.
 - Enter the IP address (47.1.1.10 in our example).
 - Enter the subnet mask (255.255.255.0 in our example).

Figure 14
TCP/IP property sheet, IP Address tab



- 5 Click **OK**.
- 6 Click **OK** again.
- 7 Restart Windows 95.

Step 8: Set Up the Server Environment

In this step you will prepare your current server environment to enable it to support MAT. If you will not be running MAT in a server environment, skip to [“Installing the MAT 5 Software” on page 5](#).

Setting Up a Windows NT Server

- Make sure MAT client PCs have read/write privileges to the directory/drive on the network server where MAT will be installed.

Setting Up a Netware Server

- Make sure MAT client PCs have read/write privileges to the directory/drive on the network server where MAT will be installed.
- Set up the network operating system to support long file names.